Claims

What is claimed is

1. A method, comprising:

using a first partial polarization beam splitter to split by reflection a fraction of light in one of first and second mutually orthogonal polarization directions from an input beam to produce a first monitor beam;

using a second partial polarization beam splitter to split by reflection a fraction of said light in said one of said first and second mutually orthogonal polarization directions from said input beam to produce a second monitor beam, wherein said first and second partial polarization beam splitters are oriented to have their polarization axes to be 90 degrees with each other;

converting said first and said second monitor beams into first, and second detector signals, respectively; and

using a difference between said first and said second detector signals to indicate an amount and a direction of a deviation in a polarization of said light from a known direction.

2. The method as in claim 1, further comprising using a third partial polarization beam splitter to split by reflection a fraction of said light in said one of said first and second mutually orthogonal polarization directions from said input beam to produce a third monitor beam, wherein said third partial polarization beam splitter is oriented between polarization axed of said first and second partial polarization beam splitters at 45 degrees.

3. The method as in claim 2, further comprising using said third monitor beam to resolve an ambiguity in the input polarization.

4. The method as in claim 1, further comprising producing a normalized differential signal by dividing said difference by a sum of said first and said second detector signals to eliminate a dependence of said difference on a power level of said input beam.

5. The method as in claim 1, further comprising controlling polarization of said input light according to said difference by controlling a polarization controller disposed in said input beam.

6. The method as in claim 1, further comprising using a third partial polarization beam splitter downstream of said first and said second partial polarization beam splitters to split by reflection a fraction of said light in said one of said first and second mutually orthogonal polarization directions from said input beam to produce a third monitor beam, wherein said third partial polarization beam splitter is oriented to have a polarization axis to be at 45 degrees with respect to said first and second partial polarization beam splitters.

7. The method as in claim 6, further comprising:

placing a polarization controlling device before said first, said second, and said third partial polarization beam splitters to control polarization of light in response to said first, said second, and said third monitor beams.

8. The method as in claim 7, further comprising using a difference between the power levels of said first and said second monitor beams as part of feedback to control the polarization controlling device.

9. A device, comprising:

an optical path through which light propagates;

a first partial polarization beam splitter in said optical path to split by reflection a fraction of the light in one of first and second mutually orthogonal polarization directions from an input beam to produce a first monitor beam;

a second partial polarization beam splitter in said optical path to split by reflection a fraction of said light in said one of said first and second mutually orthogonal polarization directions from said input beam to produce a second monitor beam, wherein said first and second partial polarization beam splitters are oriented to have their polarization axes to be 90 degrees with each other;

first and second optical detectors to respectively convert said first and said second monitor beams into first, and second detector signals, respectively; and

a circuit to receive said first and said second detector signals and to produce a difference between said first and said second detector signals to indicate an amount and a direction of a deviation in a polarization of said light from a known direction.

10. The device as in claim 9, further comprising a third partial polarization beam splitter located downstream

of said first and said second partial polarization beam splitters in said optical path, said third partial polarization beam splitter operable to split by reflection a fraction of said light in said one of said first and second mutually orthogonal polarization directions from said input beam to produce a third monitor beam, wherein said third partial polarization beam splitter is oriented to have a polarization axis to be at 45 degrees with respect to said first and second partial polarization beam splitters.

11. The device as in claim 10, further comprising a polarization controlling device before said first, said second, and said third partial polarization beam splitters to control polarization of light in response to said first, said second, and said third monitor beams.

12. The device as in claim 11, wherein said circuit produces a sum signal of power levels of said first and said second monitor beams, and wherein said polarization controlling device responds to the difference between said first and said second detector signals, the sum signal, and the power level of said third monitor beam to control polarization of light.